



PATENT APPLICATION  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Munehisa FUJITA, et al.

Appln. No.: 08/915,683

Confirmation No.: 1847

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For: DIRECT-POSITIVE PHOTOGRAPHIC SILVER HALIDE EMULSION AND  
COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL COMPRISING SAME

FOURTH SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, Takefumi HARA, do hereby declare and state as follows:

I am the same declarant who performed the experimentation described in the Third Supplemental Declaration Under 37 C.F.R. § 1.132 dated April 21, 2003, and filed on April 23, 2003. My personal history remains as stated in my prior Declaration.

The data and explanation presented in this Fourth Supplemental Declaration demonstrate that the effect of decreasing the reversal negative sensitivity due to the emulsion of the present invention is unexpectedly large.

As set forth in the Table below, I compare the density of negative image corresponding to a reversal negative relative sensitivity of 88 or less with the density of negative image corresponding to a reversal negative relative sensitivity of larger than 90.

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When a sample having a negative image relative sensitivity of 100 is exposed to light such that the density of the negative image is 1.50, the densities of the negative images of samples having various relative sensitivities are shown below. Such difference in density is significant and can be visually observed by naked eyes of human.

Relative sensitivity of negative image of sample	Density of negative image
100	1.50
95	1.30
90	1.12
88	1.05
85	0.95
80	0.78

In the Third Supplemental Declaration, Sample Nos. 25 to 28 were prepared in the same procedure as Sample Nos. 13-16, except that Compound B which contains no sulfur atom, was used as a solvent, instead of Compound A (a sulfur-containing solvent). Sample Nos. 25 to 28 were then compared with Sample Nos. 13-16. The results are summarized in the table below:

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Sample No.	$D_{max}$			$D_{min}$			Middle sensitivity			Negative sensitivity			Coefficient of variation in grain thickness
	Y	M	C	Y	M	C	Y	M	C	Y	M	C	
25 (inv)	2.17	2.31	2.47	0.15	0.16	0.24	110	126	147	83	83	83	16%
13 (inv)	2.18	2.32	2.48	0.15	0.16	0.23	111	128	149	82	82	81	15%
26 (inv)	2.13	2.27	2.43	0.17	0.18	0.26	108	124	146	86	88	88	29%
14 (inv)	2.14	2.29	2.45	0.17	0.18	0.26	109	125	147	85	88	87	28%
27 (comp)	2.10	2.24	2.40	0.19	0.21	0.29	105	121	142	91	93	94	35%
15 (comp)	2.12	2.26	2.42	0.19	0.20	0.28	105	120	141	92	94	95	33%
28 (comp)	2.04	2.19	2.33	0.23	0.24	0.33	101	118	137	100	103	105	45%
16 (comp)	2.06	2.21	2.35	0.23	0.24	0.32	102	119	138	99	101	103	43%

As is clear from the above results, substantially the same results were obtained in Sample Nos. 25-28 wherein non-sulfur atom-containing compound B was used as a solvent and Sample Nos. 13-16 wherein sulfur atom-containing compound A was used as a solvent. That is, compound A, as a solvent, does not have any significant effect on the photographic properties of an emulsion.

Further, Sample Nos. 25 and 26 of the present invention were higher in  $D_{max}$  and middle sensitivity, but remarkably lower in  $D_{min}$  and Negative sensitivity than Comparative Sample Nos. 27 and 28. Specifically, Sample Nos. 25 and 26 have a negative of sensitivity of between 81 to 88, whereas Sample Nos. 27 and 28 have a negative sensitivity of between 91 to 105. As explained above, this difference in the negative sensitivity is significant, in that the difference in the densities of negative images after the samples are exposed to light is significant.

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The above experimentation concretely demonstrates that the unexpected results of the present invention are obtained independent of the presence of sulfur atom in the silver halide solvent, and further, that control of coefficient of variation of grain thickness is critical to achieving the effects of the present invention.

In view of the above, I conclude that the effect of decreasing the reversal negative sensitivity due to the emulsion of the present invention, having a coefficient of variation in grain thickness of not more than 30%, is significant and unexpected.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: October 7, 2003

Takefumi Hara  
Takefumi HARA